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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 09/471,829 | 12/23/1999 | MASATSUGU HATANAKA | 49481(551) | 8004 |
| 21874 | 7590 | 12/06/2005 | EXAMINER | |
| EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205 | | | | TURNER, SAMUEL A |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2877 | |

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

| | | |
|------------------------------|------------------|-----------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/471,829 | HATANAKA ET AL. |
| | Examiner | Art Unit |
| | Samuel A. Turner | 2877 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 21 September 2005.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 10-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 23 December 1999 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 September 2005 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12, 13, and 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claims 12, 13, and 15-18, there is no longer antecedent basis for "said light receiving unit".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences

between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al(4,787,749) in view of Youngquist et al(4,697,926).

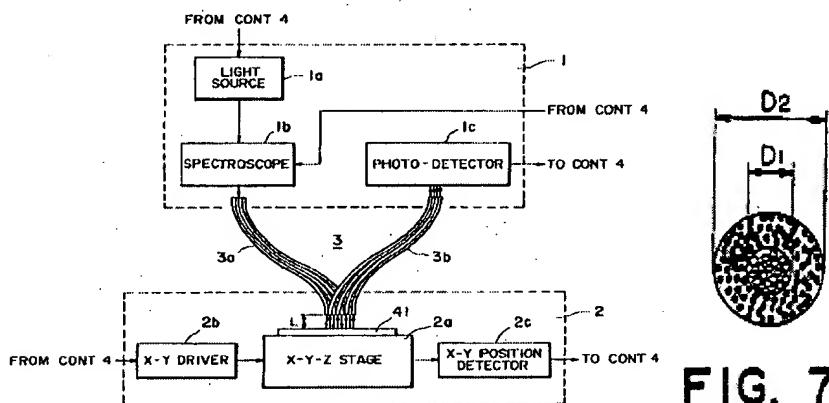


FIG. 7B

FIG. 3B

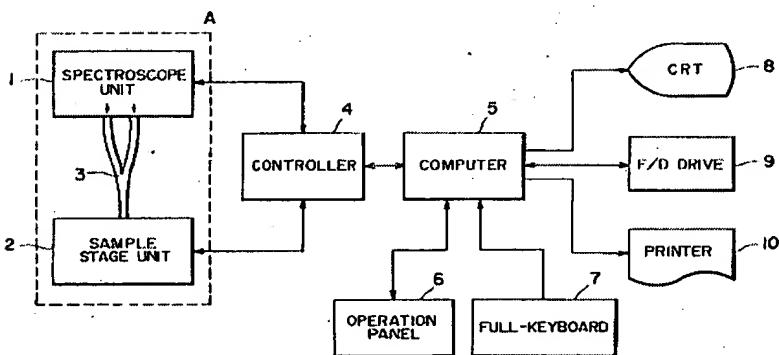


FIG. 3A

With regard to claim 1 Ban et al teach a thin film thickness measurement apparatus comprising:

a light source(1a);

a plurality of optical fibers for directing light from said light source substantially perpendicular to a substrate and for receiving light reflected from said substrate(3a and 3b); and

an analyze unit for analyzing thickness of a thin film of said substrate according to intensity of reflected light received by said optical fibers(5); wherein

(a) at least one of the optical fibers guides the light from said light source onto said substrate and receives light reflected from said substrate(3a,3b), and

(b) at least one of the optical fibers guides the reflected light from said substrate to said analyze unit(3b).

Ban et al fails to teach a shutter for selectively blocking the reflected light received by at least one of the optical fibers.

Youngquist et al teach the use of a shutter positioned between the output fiber and the detector to gate the system instead of electronically gating the system in a fiber array(column 33, lines 26+).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Ban fiber sensor system to gate the detector by

placing a shutter between the output fiber the detector in order to control the exposure of the detector.

With regard to claim 19 Ban et al teach a thin film thickness measurement method comprising the steps of:

providing a plurality of optical fibers(**column 4, lines 46+**);

directing light from a light source substantially perpendicular to a substrate via at least one of the optical fibers(**column 4, lines 46+ and figure 3a**);

receiving light reflected from said substrate via at least one of the plurality of optical fibers(**column 4, lines 46+**); and

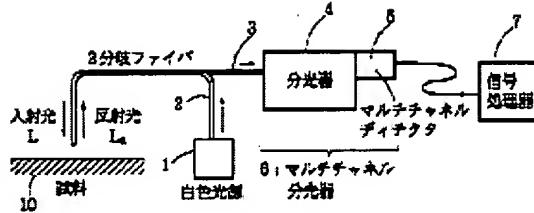
analyzing thickness of a thin film of said substrate according to intensity of said received reflected light(**column 5, lines 5+**).

Ban et al fails to teach utilizing a shutter to selectively block reflected light received by said at least one of the optical fibers.

Youngquist et al teach the use of a shutter positioned between the output fiber and the detector to gate the system instead of electronically gating the system in a fiber array(**column 33, lines 26+**).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Ban fiber sensor system to gate the detector by placing a shutter between the output fiber the detector in order to control the exposure of the detector.

【図1】



Claims 10-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ban et al(4,787,749) and Youngquist et al(4,697,926) as applied to claims 1 and 19 above, and further in view of Shigeki et al(JP 07-294220).

With regard to claims 10 and 20, Ban places a spectrometer(1b) between the source(1a) and the input fibers(3a). However Shigeki et al teach placing the spectrometer(4) between the output fiber(3) and the detector(5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Ban apparatus by placing the spectrometer between the output fibers and detector, as taught by Shigeki, instead of between the source and input fiber. This is a simple rearrangement of parts which would produce an equivalent result, the dividing the output according to intensity of each wavelength.

With regard to claims 11 and 14, Ban fails to teach the specific equations claimed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to derive the claimed equations from the basic properties of the light and the film properties as found in the Ban equations.

As to the robot hand of claims 12, 15, and 17; substrates are made in a clean room and not touched by human hands. The wafer is moved between deposition, exposure, and measurement by a conveyer such as a mechanical or robot arm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to position the fiber probe in order to illuminate the substrate as it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

With regard to claims 13, 16, and 18; it would have been obvious to one of ordinary skill in the art at the time the invention was made to locate the light receiving unit in any operable position since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose phone number is 571-272-2432.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached on 571-272-2800 ext. 77.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Samuel A. Turner
Primary Examiner
Art Unit 2877